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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,373	09/18/2003	John C.W. Ngan	2482	8499
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SPRINT 6391 SPRINT PARKWAY KSOPHT0101-Z2100 OVERLAND PARK, KS 66251-2100			EXAMINER MANOHARAN, MUTHUSWAMY GANAPATHY	
			ART UNIT 2617	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/666,373	<b>Applicant(s)</b> NGAN, JOHN C.W.	
	<b>Examiner</b> Muthuswamy G. Manoharan	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-10** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claim 1**, the recitation of the phrase," calls are forwarded to a previously programmed directory number" renders the claim unclear since calls should be forwarded to a device associated with the directory number rather than to a directory number.

**Claims 2-10** are also rejected since they are based on rejected claim 1.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1,4,5,11 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable by Goss et al. (hereinafter Goss) (US 2003/0003900) in view of Amin et al. (hereinafter Amin) (US 7171221).

Regarding **claim 1**, Goss discloses a method of activating call forwarding for a mobile station, comprising the steps of:

automatically transmitting a first feature code from said mobile station to a wireless network (Paragraph [0021]);

said first feature code activating call forwarding for said mobile station such that incoming calls are directed to a previously programmed directory number ("**feature codes**"; "**need to be programmed once**"; Paragraph [0006, 0014]);

automatically transmitting a second feature code from said mobile station to a wireless network, based on proximity or range, said second feature code deactivating said call forwarding ("**activate or deactivate call forwarding**"; Paragraph [0006]).

Goss did not teach expressly a method of monitoring a measure of received signal strength at said mobile station; continuing to monitor measure of received signal strength at said mobile station during a period when call forwarding is activate call forwarding when said monitored measure of received signal falls below a threshold level and deactivate when the signal strength raises above threshold deactivate call forwarding.

However, Amin teaches in an analogous art a method of continuing to monitor measure of received signal strength at said mobile station during a period when call forwarding is activate call forwarding when said monitored measure of received signal falls below a threshold level and deactivate when the signal strength raises above threshold deactivate call forwarding ("**if the proximity is within the threshold**", Abstract; "**proximity determination is based on signal strength**", Col. 6, lines 6-32).

Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the method of continuing to monitor measure of received signal strength at said mobile station during a period when call forwarding is activate call forwarding when said monitored measure of received signal falls below a threshold level and deactivate when the signal strength raises above threshold deactivate call forwarding. This modification provides an efficient way to implement since the mobile phones are equipped with beacon signal monitoring units.

Regarding **claim 4**, Goss teaches the method of claim 1, wherein said mobile station comprises a cellular telephone ("cellular subscriber", Paragraph [0002]).

Regarding **claim 5**, Goss teaches the method, wherein the previously programmed directory number is changeable by a user of said mobile station by interactively entering said directory number (Paragraph [0017,0020-0021])

**Claim 11** is rejected for the same reason as set forth in claim 1.

Regarding **claim 13**, Goss discloses telephony network comprising a plurality of base transceiver stations and roaming mobile stations subscribing to said network, the improvement comprising (Figure 1); providing a service control node network that activates and deactivates a call forwarding service for said roaming mobile stations, wherein said call forward service is activated and deactivated by transmission of first and second feature codes from said roaming mobile stations, respectively (Paragraph [0017]; "activate or deactivate call forwarding", "feature codes", Paragraph [0006]).

Goss did not teach specifically first and second feature codes are transmitted when a monitored measure of received signal strength at said mobile stations falls

below, and rises above threshold level, respectively. However, Amin teaches in an analogous art wherein first and second feature codes are transmitted when a monitored measure of received signal strength at said mobile stations falls below, and rises above threshold level, respectively (“if the proximity is within the threshold”, Abstract; “proximity determination is based on signal strength”, Col. 6, lines 6-32).

Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use first and second feature codes are transmitted when a monitored measure of received signal strength at said mobile stations falls below, and rises above threshold level, respectively in order to provide an efficient way to implement since the mobile phones are equipped with beacon signal monitoring units.

**Claims 2,3,7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Lundborg (U.S. 6,782,262).**

Regarding **claim 2**, Goss in view of Amin discloses all the particulars of the claim, except wherein said step of monitoring a measure of received signal strength comprises the step of monitoring the ratio  $E_c / I_o$ , wherein  $E_c$  is a measure of carrier strength and  $I_o$  is a measure of interference. However, Lundborg teaches in an analogous art, step of monitoring a measure of received signal strength comprises the step of monitoring the ratio  $E_c / I_o$ , wherein  $E_c$  is a measure of carrier strength and  $I_o$  is a measure of interference (Col. 9, lines 8-10). Quality of a digital channel is measured by bit error rate (BER) on the up or down link and is related to the ratio  $E_c / I_o$ .

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use ratio  $E_c / I_o$  for setting the signal strength threshold.

Regarding **claim 3**, Goss in view of Amin discloses all the particulars of the claim, except wherein said step of monitoring a measure of received signal strength comprises the step of monitoring a signal to noise ratio of a received signal from a base transceiver station in a cellular telephone network. However, Lundborg teaches in an analogous art, step of monitoring a measure of received signal strength comprises the step of monitoring a signal to noise ratio of a received signal from a base transceiver station in a cellular telephone network (Col. 9, lines 20-22). Speech quality for an analog channel is measured by the signal to noise ratio on the up or down link. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use signal to noise ratio of a received signal from a base transceiver station in a cellular telephone network as a measure of received signal strength.

Regarding **claim 7**, Goss in view of Amin discloses all the particulars of the claim, except wherein the threshold level is determined by an element in said wireless network and transmitted to said mobile station. However, Lundborg teaches in an analogous art, the method of call forwarding for a mobile station, wherein the threshold level is determined by an element in said wireless network and transmitted to said mobile station (Col. 9, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method, wherein the threshold level is determined by an element in said wireless network and transmitted to

said mobile station. The variation of the threshold based on the mobile station has to be taken into account in order to improve the efficiency of communication.

Regarding **claim 10**, Goss in view of Amin discloses all the particulars of the claim, except wherein the first feature code is transmitted if the monitored measure of received signal strength remains below the threshold level for predetermined period of time. However, Lundborg teaches in an analogous art, discloses the method, wherein the first feature code is transmitted if the monitored measure of received signal strength remains below the threshold level for predetermined period of time (items 64 and 66 in Figure 6; 51-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method; wherein the first feature code is transmitted if the monitored measure of received signal strength remains below the threshold level for predetermined period of time. This waiting period is required in order to avoid performing call forward too often.

**Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Lo (U.S. RE37, 301E).**

Regarding **claim 6**, Goss in view of Amin discloses all the particulars of the claim, except wherein said feature code is sent to said wireless network over an access channel. However, Lo teaches in an analogous art, wherein said feature code is sent to said wireless network over an access channel (Col. 2, lines (66-67)). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of activating call forwarding for a mobile station wherein said feature code is sent to said wireless network over an access channel. This method of sending the



feature code through access channel would improve the transmission efficiency and reduce the access delay.

**Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Jensen (U.S. 2002/0022480).**

Regarding **claim 8**, Goss in view of Amin discloses all the particulars of the claim, except wherein the threshold level varies depending upon the type of mobile station. However, Jensen teaches in an analogous art, the method of call forwarding for a mobile station, wherein the threshold level varies depending upon the type of mobile station (Paragraph [0015], lines (6-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method, wherein the threshold level varies depending upon the type of mobile station. By including all the factors that are affecting the threshold one can improve the efficiency and performance of cellular system.

**Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Chawla et al. (hereinafter Chawla) (U.S. 6,496,700).**

Regarding **claim 9**, Goss in view of Amin discloses all the particulars of the claim except wherein the threshold level lies in the range of -85dB to -90 dB. However, Chawla teaches in an analogous art, wherein the threshold level lies in the range of -85dB to -90 dB (col. 19, lines 37-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the threshold level lies in the range of -85dB to -90 dB.

**Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Haub (US 2004/0152429).**

Regarding **claim 12**, Goss in view of Amin discloses all the particulars of the claim except wherein said wireless telephone operates in a CDMA network and wherein said circuitry monitors the ratio  $E_c / I_o$ , wherein  $E_c$  is a measure of carrier strength and  $I_o$  is a measure of interference. However, Haub teaches in an analogous art, discloses the wireless telephone, wherein said wireless telephone operates in a CDMA network and wherein said circuitry monitors the ratio  $E_c / I_o$ , wherein  $E_c$  is a measure of carrier strength and  $I_o$  is a measure of interference (Paragraph [0022], lines (11-15)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the wireless telephone, wherein said wireless telephone operates in a CDMA network and wherein said circuitry monitors the ratio  $E_c / I_o$ , wherein  $E_c$  is a measure of carrier strength and  $I_o$  is a measure of interference.

**Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Kisse et al. (hereinafter Kisse) (US 6567665).**

Regarding **claim 14**, Goss in view of Amin discloses all the particulars of the claim, except wherein the service control node sets the threshold level. However, Kisse teaches in an analogous art, wherein the service control node sets the threshold level (Col. 13, lines 10-13). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the service control node sets the threshold level.

Since the service control node is forwarding the calls, it is convenient to have the service control node sets the threshold level.

**Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Balachandran (US 5594943).**

Regarding **claim 15**, Goss in view of Amin discloses all the particulars of the claim, except wherein the threshold level is determined by reference to a level in which calls are dropped. However, Balachandran teaches in an analogous art wherein the threshold level is determined by reference to a level in which calls are dropped (Col. 2, lines 24-25). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the threshold level, wherein the threshold level is determined by reference to a level in which calls are dropped. This threshold level represent performance threshold, which can be used to determine whether the air link can reliably transmit information.

**Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin, Balachandran and Hilliard et al. (hereinafter Hilliard) (US 6876949).**

Regarding **claim 16**, the combination of Goss, Amin and Balachandran teaches all the particulars of the claim except wherein the threshold level is offset from a dropped call level by a fixed amount. However, Hilliard teaches in an analogous art ("Error analysis" in Statistics, Also providing an offset using standard deviation is well known in the art) teaches a method wherein the threshold level is offset by a fixed amount (Col. 15, lines 34-38). Therefore, it would be obvious to one of ordinary skill in

the art at the time of invention to use the threshold level, wherein the threshold level is offset from a dropped call level by a fixed amount. This modification provides a compromise between signal quality and bad call forwarding decision.

**Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goss in view of Amin and Jensen (U.S. 2002/0022480).**

Regarding **claim 17**, Goss in view of Amin discloses all the particulars of the claim, except wherein the threshold level varies depending upon the type of mobile station. However, Jensen teaches in an analogous art, the method of call forwarding for a mobile station, wherein the threshold level varies depending upon the type of mobile station (Paragraph [0015], lines (6-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method, wherein the threshold level varies depending upon the type of mobile station. By including all the factors that are affecting the threshold one can improve the efficiency and performance of cellular system.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Muthuswamy G. Manoharan whose telephone number is 571-272-5515. The examiner can normally be reached on 7:00AM-2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eng George can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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GEORGE ENG  
SUPERVISORY PATENT EXAMINER